

Abstract of the Disclosure

The direct optical amplifier of the present invention monitors not only a pilot tone signal but also the main signal, and when the pilot tone signal loses 5 relation to the main signal, re-establishes the relation between the level of the pilot tone signal and the average level of the main signal such that the pilot tone signal again functions as the reference light of the main signal. The average level of the true main signal from which a 10 noise component has been eliminated is determined by means of a wavelength analyzer. The average level of the true main signal that has been determined is correlated with the level of a pilot tone signal that is monitored, whereby the pilot tone signal again functions as the 15 reference light of the main signal. The monitored pilot tone signal is then controlled to obtain the desired average level of the true main signal.